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EXAMINER
SITTA, GRANT

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Please find below and/or attached an Office communication concerning this application or proceeding.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/564,920
Filing Date: January 17, 2006
Appellant(s): DESTURA ET AL.

Mark Joy
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 07/07/2010 appealing from the Office action mailed 1/07/2010.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The following is a list of claims that are rejected and pending in the application:

1, 2, 4 and 7-15

(4) Status of Amendments After Final

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

(5) Summary of Claimed Subject Matter

The examiner has no comment on the summary of claimed subject matter contained in the brief.

(6) Grounds of Rejection to be Reviewed on Appeal

The examiner has no comment on the appellant's statement of the grounds of rejection to be reviewed on appeal. Every ground of rejection set forth in the Office action from which the appeal is taken (as modified by any advisory actions) is being maintained by the examiner except for the grounds of rejection (if any) listed under the subheading "WITHDRAWN REJECTIONS." New grounds of rejection (if any) are provided under the subheading "NEW GROUNDS OF REJECTION."

(7) Claims Appendix

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

(8) Evidence Relied Upon

5,907,375	**Nishikawa**	**5-1999**
7,109,967	**Hioki**	**3-2003**
6,762,752	**Perski**	**10-2002**
6,535,091	**Bechtle**	**11-2001**
6,133,906	**Geaghan**	**5-1995**

Applicant Admitted Prior Art (PG PUB 2006/0209039)

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2,4,7, 9, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa et al (5,907,375) hereinafter, Nishikawa in view of Hioki et

al (7,109,967) hereinafter, Hioki further in view of Geaghan et al (6,133,906) hereinafter, Geaghan.

3. In regards to claim1, Nishikawa discloses the limitations of a touch sensitive display comprising **(abstract)** a display element having a viewer proximal side and a viewer distal side (fig. 5 (43) front and back) and comprising a pixel array with rows and columns of pixels **(fig. 5 inherent rows and columns of LCD);** and a touch sensitive element disposed on the viewer distal side of the display element **(fig. 5 (42) col. 10, lines 5-10)** and wherein the touch sensitive element comprises :

a first conductive layer comprising a first plurality of conductors **(fig. 5 (52) and col. 11, lines 55-60)**;

a second conductive layer comprising a second plurality of conductors **(fig. 5 (52) and col. 11, lines 55-60)**; and

a pressure sensitive layer **(fig. 5 (53 and 55))** sandwiched between the first conductive layer and the second conductive layer and operable to modify an electrical conductivity between a first conductor of the first plurality of conductors and a second conductor of the second plurality of conductors in response to a pressure point resulting from an applied pressure **(col. 11, lines 35-67).**

Nishikawa differs from the claimed invention in that Nishikawa does not expressly disclose using an active matrix display.

However, Hioki teaches a system and method for using an active matrix display **(col. 14, line 40 of Hioki)**.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the display device of Nishikawa to be an active matrix display device as taught by Hioki in order to provide for a light weight display, with good image quality, faster response time, and sharper display than a passive matrix display.

Nishikawa and Hioki fail to teach

characterized in that:

the first plurality of conductors are row conductors of the touch sensitive element and the second plurality of conductors are column conductors of the touch sensitive element,

each row of pixels shares a respective row buffer amplifier with a touch sensitive element row conductor, and

each column of pixels shares a respective column buffer amplifier with a touch sensitive element column conductor.

However, Geaghan teaches

a first plurality of conductors are row conductors of a touch sensitive element and a second plurality of conductors are column conductors of a touch sensitive element **(fig. 5a Xa-Xd row; and (Ya-Yd)**,

each row of pixels shares a respective row buffer amplifier with a touch sensitive element row conductor **(fig. 5a Xa-Xd row (col. 6, lines 10-30)**, and

each column of pixels shares a respective column buffer amplifier with a touch sensitive element column conductor **(fig. 5a; and (Ya-Yd) (col. 5, lines 10-67)**.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify the display device of Nishikawa and Hioki to be wherein each pixel shares a respective buffer with a touch sensitive element as taught by Geaghan in order to provide for a integrated sensing and display technology for to accomplish an inherent aligned retrofittable system **(col. 4, lines 4-12)**; and "a system for sensing the position of a stylus proximate a display device employing a matrix of display electrodes. The system includes means for generating stylus-positioning signals from either the stylus or the display electrodes, or alternating between the two, and means for sensing an effect of those signals from the other of the stylus and display electrodes in response to the sensed effect. There are means for resolving the position of the stylus in relation to the display electrodes. The positioning signals may be coupled to the display electrodes directly, capacitively or magnetically. The position of the stylus may be resolved by determining the relative strengths of the sensed signals, or the relative phase of the sensed signals." **(col. 4, lines 13-24).**

4. In regards to claim 2, Nishikawa teaches a touch sensitive display as claimed in claim 1 wherein the touch sensitive element comprises a plurality of pressure sensitive elements **(abstract and col. 11, lines 35-67)**.

5. In regards to claim 4, Nishikawa as modified by Hioki teaches a touch sensitive display as claimed in claim 2 wherein the plurality of pressure sensitive elements is aligned with pixels **(col. 11, lines 20-56 Nishikawa)** of the active matrix display element **(col. 14, line 40 of Hioki).**

6. In regards to claim 7, Nishikawa discloses the limitations of the pressure sensitive layer **(abstract).**

Nishikawa differs from the claimed invention in that Nishikawa does not expressly disclose using piezoelectric material.

However, Hioki teaches a system and method for using piezoelectric material **(col. 8, lines 37-52 of Hioki) since the piezoelectric material is used to generate an electric potential in response to applied mechanical stress.**

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Nishikawa to include the use of piezoelectric materialin the pressure sensitive layer as taught by Hioki in order to provide electric potential in response to mechanical stress which is beneficial generating high voltages, electronic frequency generation, micorbalances and ultra fine focusing of optical assemblies.

7. In regards to claim 9, Nishikawa teaches a touch sensitive display as claimed in claim 1 further comprising detection means operable to determine a position of the pressure point in response to the change in electrical conductivity between the first

conductor and the second conductor **(col. 9, lines 43-67 and col. 11, lines 35-67)**.

8. In regards to claim 15, Nishikawa teaches a portable device comprising a touch sensitive display as claimed in claim 1 **(col. 1, lines 10-11)**.

9. Claims 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa, Hioki and Geaghan, in view of Bechtle et. al (US 6,535,091) hereinafter, Bechtle.

10. In regards to claim 8, Nishikawa, Hioki and Geaghan disclose a pressure sensitive layer (17) (**(abstract) Nishikawa)**

Nishikawa, Hioki and Geaghan differ from the claimed invention in that Nishikawa, Hioki and Geaghan do not disclose wherein the pressure sensitive layer (17) comprises Micro-EiectroMecbanicai (MEM) switches operable to modify the electrical conductivity.

However, Bechtle teaches a system and method for using Micro-EiectroMecbanicai (MEM) switches operable to modify the electrical conductivity. **(fig. 1 col. 1-2, lines 20-10 of Bechtle)**.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Nishikawa, Hioki and Geaghan to include in the pressure sensitive layer the use of Micro-EiectroMecbanicai (MEM) switches operable to modify the

electrical conductivity as taught by Bechtle because of the added advantages of MEMs of solid stated devices including but not limited to as stated in (col. 1-2, lines 20-10 of Bechtle).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa, Hioki and Geaghan, in view of Perski et. al (US 6,762,752) hereinafter, Perski

12. In regards to claim 10, Nishikawa, Hioki and Geaghan differs from the claimed invention in that Nishikawa, Hioki and Geaghan do not disclose wherein the detection means is operable to detect a plurality of simultaneous pressure points.

However, Perski teaches a system and method for wherein the detection means is operable to detect a plurality of simultaneous pressure points. **(col. 7, lines 39-60 of Perski)**.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Nishikawa, Hioki and Geaghan to include the use of wherein the detection means is operable to detect a plurality of simultaneous pressure points as taught by Perski in order to allow for multiple inputs which allows for easier and fast input of data.

13. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa, Hioki, Geaghan and Perski in view of Applicant Admitted Prior Art, hereinafter referred to as AAPA.

14. In regards to claim 11 Nishikawa, Hioki and Geaghan differ from the claimed invention in that Nishikawa and Hioki do not **expressly** disclose wherein the detection means comprise a signal source for outputting a signal on the first conductor and a sense amplifier coupled to the second conductor for detecting an electrical signal caused by an electrical conductivity being formed between the first conductor and the second conductor in response to the pressure point.

However, AAPA teaches a system and method for wherein the detection means comprise a signal source **(fig. 3 (309))** for outputting a signal on the first conductor and a sense amplifier **(fig. 3 (311))** coupled to the second conductor for detecting an electrical signal caused by an electrical conductivity being formed between the first conductor and the second conductor in response to the pressure point. **(fig. 3 [0066-0069]).**

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to modify Nishikawa, Hioki and Geaghan to include the use of wherein the detection means comprise a signal source for outputting a signal on the first conductor and a sense amplifier coupled to the second conductor for detecting an electrical signal caused by an electrical conductivity being formed between the first conductor and the second conductor in response to the pressure point as taught by AAPA in order to

amplify signals from the pixels to increase the distance a signal can travel and allow for greater space between components.

15. In regards to claim 12, Nishikawa and Hioki as modified by AAPA touch sensitive display as claimed in claim 11 wherein the electrical signal is an electrical charge and the sense amplifier is a charge sensitive amplifier **(fig. 3 (311) AAPA)**.

16. In regards to claim 13, Nishikawa, Hioki and Geaghan as modified by AAPA teaches a touch sensitive display as claimed in claim 11 further comprising a display controller wherein the display controller uses the row (fig. 5a Xa-Xd Geaghan) buffer amplifier (309) operable to provide a display control signal in a display driver configuration and wherein the touch sensitive display is further operable to use the row buffer amplifier (fig. 5a Xa-Xd Geaghan) as a signal source (309) in a pressure point detection configuration **(fig. 3 (309)) AAPA)**.

17. In regards to claim 14, Nishikawa, Hioki and Geaghan as modified by AAPA teaches a touch sensitive display as claimed in claim 11 further comprising a display controller wherein the display controller uses the column (fig. 5a Ya-Yd Geaghan) buffer amplifier (311) operable to provide a display control signal and (311) as the buffer amplifier (311) in a display driver configuration and wherein the touch sensitive display is further operable to use the row buffer amplifier (fig. 5a Ya-Yd Geaghan) as the sense amplifier (311) in a pressure point detection configuration **(fig. 3 (311) AAPA).**

(10) Response to Argument

In response to Applicant's remarks with respect to the absence of the claimed "Dual Purpose Buffers" in the cited prior art.

Applicant asserts Nishikawa neither discloses nor suggests row-by-row or column-by-column sharing of buffers for BOTH DISPLAY AND TOUCH SENSOR FUNCTIONALITIES. Applicant expressly states, nowhere does Nishikawa disclose or even remotely suggest Appellants' claimed single buffer that is used for both display and touch sensor functionalities (pg 8, 4th ¶).

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Examiner is relying on Geaghan to teach the claimed *"dual purpose buffers."* Geaghan is a "Display-integrated stylus detection system". The object of Geaghan is to provide a coordinate input system that is inherently aligned with the display, provide a digitization device that does not hinder a display, and provide for a relatively simple and inexpensive means for providing a digitizer function. Geaghan accomplishes this, in part, by using the display electrodes part of the digitizer.

> The positioning signals may be sequentially coupled to different display electrodes, and in that case the stylus position may

> be resolved based on timing of the sequential coupling. Preferably, the positioning signals are AC signals that may be superimposed on the display matrix drive signals without interrupting the display and without the need for multiplexing the display drive signals. As a result, the invention has no effect on the display quality. The signals may be superimposed with amplifiers for driving positioning currents in the display electrodes (col. 4, lines 26-40)(emphasis added)

Geaghan superimposes a positioning signal on a display drive signal as can be seen in FIG. 5A which is a schematic diagram of yet another means of implementing the system of FIG. 1 in which the display matrix is used to transmit the digitization signal.

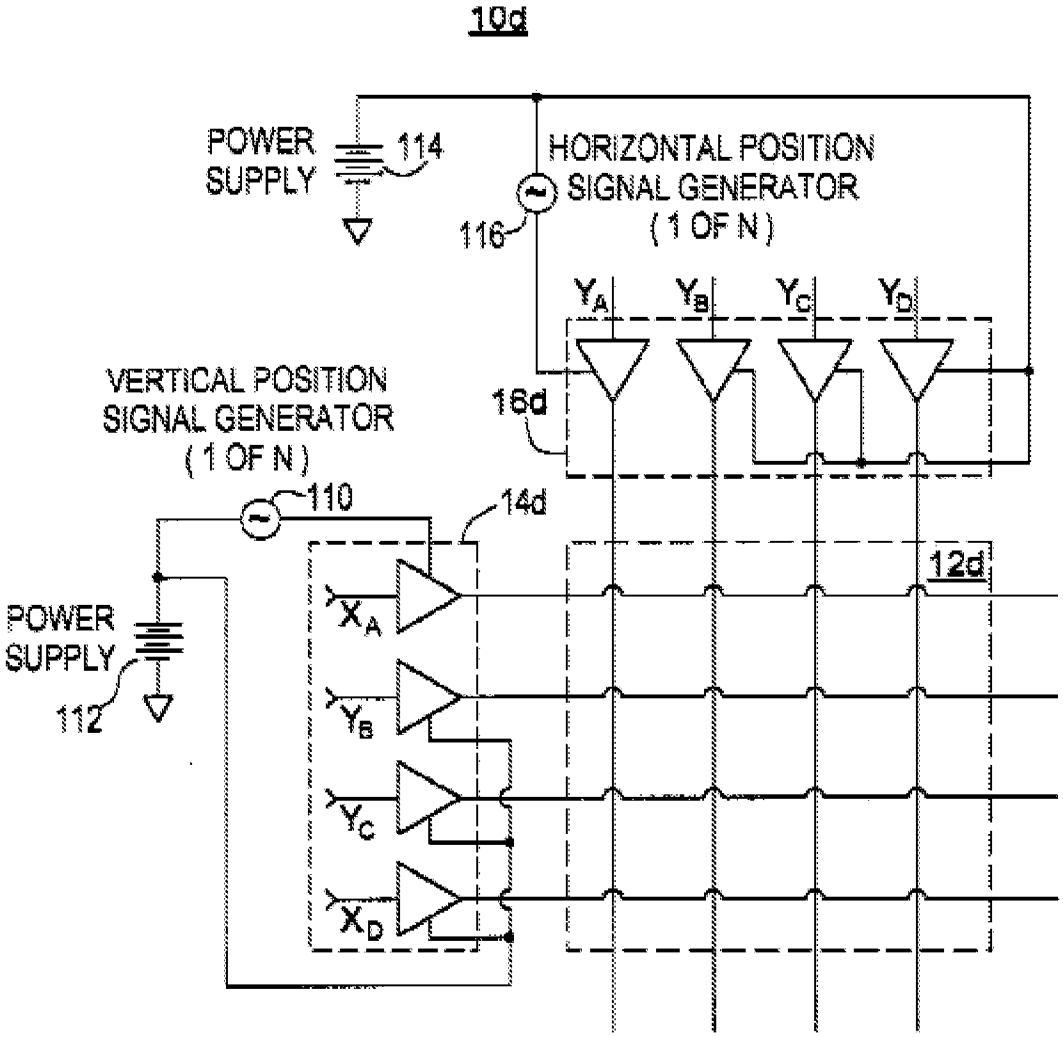

FIG. 5A

Geaghan goes on to state “[t]he preferred embodiments described above do not require specific position signal connections to the display driver amplifiers. It may be preferable in some cases to use the display driver circuits to transmit both the display signals and the superimposed position signals to the display electrodes. This may be done by one of three methods. First, the display driver circuit can be modified to

internally mix the display and position signals. Alternatively, an additional mixing circuit can be added to the output of the display driver. Finally, the display driver signal can be modulated by external means. FIG. 5A shows a circuit configuration 10d where the power supply input to standard LCD display drivers is modulated with position signals. Superimposing position signals onto the driver power supply will cause the driver to mix the display and position data so its output is a combination of both signals." (col. 7, lines 14-30). With respect to Geagahn Applicant concedes Geagahn discloses a device with a display overlaying a touch system, but the electrical control of the display and the touch system work fully independent of one another. Examiner respectfully disagrees, since the driving signal is mixed/superimposed with the positioning signal as disclosed above.

Claim 7

Applicant asserts the cited teachings of Hioki fails to teach a piezoelectric material, operable to modify electrical conductivity, gradually modifying resistance change of the pressure layer as a function the pressure. Piezoelectric is a charge that accumulates in certain solid material (crystals and ceramics) in response to applied mechanical strain, or in other words a common bridge, with input devices, between the mechanical and electrical world to identify location. Examiner notes claim 7 states, wherein the pressure sensitive layer comprises a piezoelectric material operable to modify the electrical conductivity. Examiner asserts it is well within the ability of one of ordinary skill familiar with input device to incorporate, wherein the pressure sensitive layer comprises a piezoelectric material operable to modify the electrical conductivity,

as piezoelectric material is readily available, evidenced by the discussion of Hioki discussion “as a perception layer 35, an organic material of resistance, the charge of non-equipments, a semiconducting material, etc. can be chosen suitably, and can be used, for example. Or a piezoelectric material and a dielectric material may be used.” (col. 8, lines 37-40). Please also see figs. 7a, 7b, 8, 9 10 and 12.

Claim 8 is rejected for the same reasons disclosed above with respect to claim 1. In response to applicant’s argument that there is no teaching, suggestion, or motivation to combine the references, the examiner recognizes that obviousness may be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988), *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992), and *KSR International Co. v. Teleflex, Inc.*, 550 U.S. 398, 82 USPQ2d 1385 (2007). In this case, all reference relied upon would be readily available to one familiar with the touch screen art. The contested “dual purpose buffer” is taught by Geaghan, as noted above, and would allow for a reduction in redundant parts. Therefore, Examiner asserts it would have been obvious to one of ordinary skill to modify the teachings of Nishikawa to include the use of a "dual purpose buffer" in order to provide an input system that is inherently aligned with the display, provide a digitization device that does not hinder a display, and provide for a relatively simple and inexpensive means for providing a digitizer function as taught by Geaghan

Claim 10 is rejected for the same reason discussed in claim 1 and claim 8 above.

Claims 13 and 4 are rejected for the same reason disused with respect to claim 1.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Grant D Sitta/
Examiner, Art Unit 2629

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